

## RETRACTABLE CAB HEIGHT COVER FOR VEHICLE CARGO BEDS

### BACKGROUND OF THE INVENTION

The prior art offers two types of covers for vehicle cargo beds such as pickup truck cargo beds. The first type are commonly known as cargo bed or tonneau covers and fit substantially even with the top of a pickup truck's cargo bed. They come in either soft fabric, normally a coated canvas type material, or hard structure, generally a fiberglass or other rigid material. The hard structure cargo bed covers, in their most popular arrangement, tilt upward from where they are attached to the front end of the cargo bed or are made from one or more pieces and are removable for when hauling cargo that is higher than the sides of the cargo bed. Another version is made from a number of attached pieces that can be retracted into a storage compartment at the front of the cargo bed to thereby get it out of the way when hauling cargo higher than the cargo bed sides. All of these suffer a serious limitation in that they cannot be used when hauling cargo higher than the sides of the cargo bed unless they are tilted up, removed, or retracted. In all cases, hauling the higher cargo exposes such cargo to weather and wind damage.

The second type is most commonly known as the camper top or topper. These are full cab height and extend from the cab, or passenger cab as sometimes known, to the tailgate. They provide a full cab height weather proof compartment and, while removable with some effort required to unbolt and store the unit, are generally permanently installed. The most common construction for these topper units is from fiberglass so as to provide the necessary rigid structure.

The instant invention solves the shortcomings of both of the prior art types in that it offers a full cab height waterproof unit that is retractable so that the cargo bed is open

over most of this length. This provides a pickup type look and easy access to the open cargo bed when retracted. When extended, it provides a full cab height waterproof enclosure over the cargo bed. Other applications of the same instant invention include to new vehicle designs where it may be offered as factory equipment for pickup trucks, sport utility vehicles (SUV's), or similar type vehicles.

### SUMMARY OF THE INVENTION

A primary object of the instant invention is to offer an improved cargo bed cover for cargo beds of vehicles where said cargo bed cover is of substantially a height of a cab of the vehicle and is disposed, at least primarily, aft of a cab of the vehicle and retractable to thereby render said cargo bed open over at least a portion of its length.

A related object of the invention is that retraction of the cargo bed cover may render said cargo bed open over at least thirty percent of its length.

Another related object of the invention is that retraction of the cargo bed cover may render said cargo bed open over at least forty percent of its length.

Still another related object of the invention is that retraction of the cargo bed cover may render said cargo bed open over at least fifty percent of its length.

Yet another related object of the invention is that retraction of the cargo bed cover may render said cargo bed open over at least sixty percent of its length.

Still one more related object of the invention is that retraction of the cargo bed cover may render said cargo bed open over at least seventy percent of its length.

A further object of the invention is that the cargo bed cover may be comprised of two or more cargo bed cover elements.

Yet another object of the invention is that the cargo bed cover may be comprised of three cargo bed cover elements.

A further object of the invention is that said cargo bed cover may be comprised of four cargo bed cover elements.

One of the preferred embodiments of the invention is that a first cargo bed cover element of the cargo bed cover may be fixedly attached to the vehicle.

A directly related object of the invention is that said first cargo bed cover element of the cargo bed cover may be enclosed on its forward end and its sides.

A primary object of the invention is that one or more of cargo bed cover elements of the cargo bed cover may slide aft to effect a covered closure over the cargo bed.

A directly related object of the invention is that one or more of cargo bed cover elements of the cargo bed cover slide forward to effect an open aft end of the cargo bed.

A further object of the invention is that, when extended aft, said cargo bed cover is lockable to a tailgate of a pickup truck.

Yet another object of the invention is that it include a stoplight affixed proximal an aft end of a first cargo bed cover element.

A similar object of the invention is that it include a stoplight affixed proximal an aft portion of a rearmost cargo bed cover element as seen with the cargo bed cover extended rearward.

Another object of the invention is that elements of said cargo bed cover slide in tracks disposed either side of the cargo bed.

A directly related object of the invention is that the tracks include rolling elements such as ball or roller bearings.

Yet another object of the invention is that elements of said cargo bed cover may have upward turning seal portions to prevent water from entering the cargo bed when said elements are extended to cover the cargo bed.

A directly related object of the invention is that the seal portions disposed between elements of said cargo bed cover may include a seal element that may be compressed.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 presents a rear quarter perspective view of a vehicle, in this case a pickup truck, with the instant invention retractable cargo bed cover retracted in its forward position to thereby leave the aft portion of its cargo bed open. The important feature here is that the retractable cargo bed cover is at substantially the same height as the cab of the pickup truck. It is also important to note that the forward element of the retractable cover is affixed in this case. Also, that forward element may be simply a part of the cab of the vehicle which may be preferred in a new vehicle design.

Figure 2 is the same perspective view as presented in Figure 1 but showing elements of the retractable cargo bed as they are being extended aft.

Figure 3 presents a perspective view as Figures 1 and 2 but with the retractable cover elements extended aft so that they enclose the entire bed of the pickup truck here. Note that the brake light, while shown mounted on the forward affixed element here, may be affixed to the aft retractable element. This latter approach gives best view of the stop light when the retractable bed cover is extended aft.

Figure 4 presents a partial view of the instant invention as taken through a vertical centerline plane of the vehicle presented in Figure 1. This is with the instant invention

bed cover retracted forward. Note the windows in the first affixed element and the fold down portion of the aft retractable element.

Figure 5 gives a partial view taken through a vertical centerline plane of Figure 3. This is with the instant invention retractable cab height bed cover extended all the way aft. Note that the rear window portion extended down and locked against a tailgate of a pickup truck in this illustration.

Figure 6 presents a partial cross-section, as taken through line 6-6 of Figure 4 that shows a preferred embodiment of working sections of side mounts. In this case the retractable elements are mounted on ball bearings to make movement easy. The outer element shown as fixed represents a first fixed in place element. While the first or forward element is shown as fixed in figures presented in this application it is to be realized that it may move fore and aft also if such presents a desirable option.

Figure 7 gives an enlarged view of how the elements of the cover may seal out water from entering. In this example, there is a sealing lip on each part with a compression seal between them. Various other approaches to sealing are within the scope of the instant invention.

#### DETAILED DESCRIPTION

Figure 1 presents a rear quarter perspective view of a vehicle 30, in this case of a pickup truck, that shows the instant invention retractable cab height vehicle cargo bed cover 31. A forward element 32, in this example fixed in position, and retractable elements 33, 34 are shown in their retracted position to thereby give a maximum open cargo bed opening. The cargo bed 44, pickup tailgate 36, cargo bed side 42, and brake light 38 are also shown.

Figure 2 shows the same perspective view as does Figure 1 but with retractable elements 33, 34 shown as they are being moved aft.

Figure 3 presents the same view as does Figures 1 and 2 but with the retractable bed cover elements 33, 34 extended all way aft to thereby cover the entire cargo bed. Note the rear window element 36 that is folded down and locked to the tailgate 36 in this case.

Figure 4 presents a partial cross sectional view, as taken through a vertical centerline plane of the vehicle 30 given in Figure 1, that shows positioning of the various elements when the instant invention retractable cab height bed cover 31 is retracted forward. Note that the rear hinged portion 36 is retracted upward here so that full size and height items may be placed all the way to the aft end of the cargo bed 44. Note also the rear window 45 that allows full view aft by a driver of the vehicle.

Figure 5 shows a partial cross sectional view, as taken through a vertical centerline plane of the vehicle 30 that is shown in Figure 3. This shows all of the retractable bed cover elements 33, 34 extended all the way aft to thereby cover the full cargo bed 44. Other items shown include side mounts 39 that are mounted on cargo bed sides 42, and compression seal elements 40.

Figure 6 presents a partial cross sectional view, as taken through line 6-6 of Figure 4, that shows a preferred embodiment slide mount 39 that includes rolling elements 41, and bed cover retractable element mount adapters 43. Note that other means of reducing friction than the ball bearings shown may be used. Also, roller bearing elements may be used to replace the ball bearings 40.

Figure 7 is an enlarged view that shows how a typical means of sealing between retractable bed cover elements may be accomplished. Note the downward extending lip on element 33 and the upward extending lip on the more rearward element 34. A compression seal 40 such as might be made from sponge rubber is shown.

From a construction standpoint, the retractable bed cover elements 33, 34 would best be constructed using a composite construction. As an example, while not shown, this might utilize a fiberglass or other composite outer layer, a foam core, and a fiberglass or other composite inner layer. Other materials such as structural foam, while very expensive from a tooling standpoint, may also be utilized.

While the invention has been described in connection with a preferred and several alternative embodiments, it will be understood that there is no intention to thereby limit the invention. On the contrary, there is intended to be covered all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims, which are the sole definition of the invention.